

6W1

AMATEUR RADIO



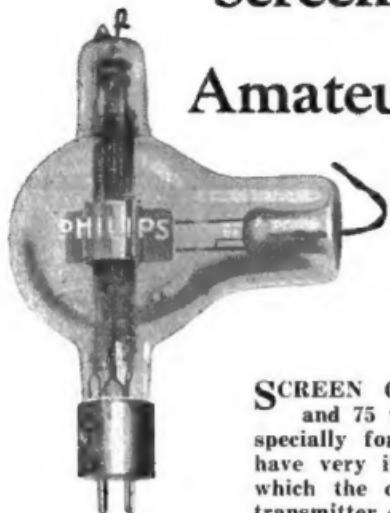
Published in the interests of Amateur Radio
by the W.I.A. (Vic. Div.). Official Organ
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(N.S.W.) and the R.A.A.F. Wireless Reserve.



PRICE
6D

JANUARY, 1935

Screen Grid Valves For Amateur Transmitters



quarter of actual size

Types:
QB2/75, QC05/15

SCREEN GRID Transmitting Valves for 15 and 75 watts have been designed by Philips specially for use by amateurs. These valves have very important properties, as a result of which the construction and adjustment of the transmitter can be greatly simplified. The control-grid and anode of these valves are screened from each other by a screen-grid, thus reducing anode-control grid capacity to a minimum. When used as H.F. amplifier or frequency multiplier in controlled transmitters there is practically no reaction of the anode circuit on the grid circuit, and self-oscillation is impossible with screening outside the valve. Neutralisation is unnecessary, so it is very easy to alter the wave-length at short notice. These screen-grid valves give greater amplification than triodes under the same conditions.

Table A shows the various electrical properties of the Philips amateur transmitting valves:—

CHARACTERISTICS:

Table A.

Type.

	Screen Grid Valves	
	QC 05/15.	QB 2/75
Filament Voltage	4.0	10.0
Filament current*	1	3.25
Saturation current*	400	2,000
Anode voltage	400-500	2,000
Screen grid voltage	75-125	300-500
Max. anode dissipation	15	75
Anode dissipation on test	20	100
Max. screen grid dissipation	3	15
Amplification factor*	225	200
Mutual conductance (slope)*	1.4	1.4
Int. resistance*	160,000	150,000
Anode-grid capacity	.001	.02
Max. diam. of bulb	50	100
Max. length	160	210

* Approximate values.

PHILIPS
TRANSMITTING VALVES

AMATEUR RADIO

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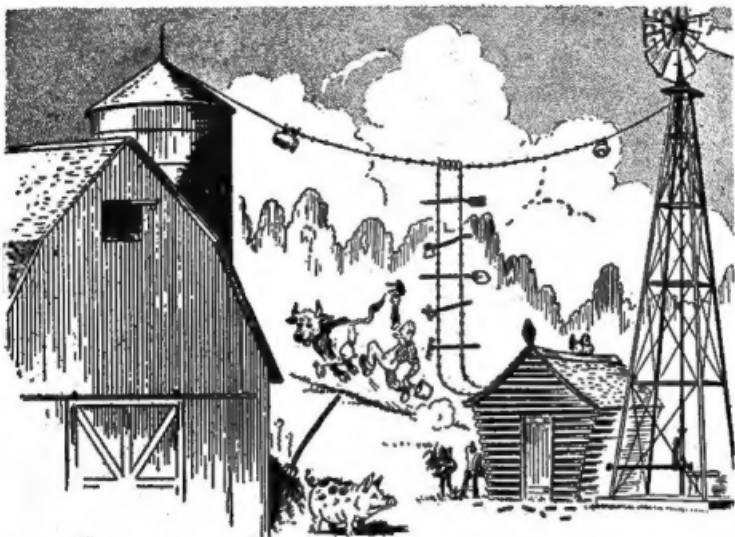
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Editorial

The New Year

As this issue of Amateur Radio is the first of the 1935 series the editorial committee has pleasure in wishing all members of the W.I.A., affiliated societies and general readers a very happy and prosperous New Year. There is no doubt that in organised amateur circles many successful contests, field days, tests, etc., were arranged during the last year. All these were the outcome of combined efforts on the part of people interested in a common field of experimentation. May 1935 be another year filled with progressive activities—more experimentation—more unity amongst amateurs throughout the Commonwealth. We leave it to you.

We are particularly grateful to those responsible in each State for their helpful and continued support during 1934. We as a committee know only too well the difficulties of increasing circulation, obtaining advertising contracts, writing notes and copy, etc., and can truthfully say that we are very thankful for all such support.

ANNUAL CONVENTION

The month of January should be a great one for the W.I.A. throughout Australia. Many decisions and questions of policy will be settled in Hobart when the Annual Convention meets to consider those problems which arise to engage our attention each year. From the point of view of the general membership the outcome of an Annual Convention may appear to be somewhat hazy and difficult to define, nevertheless, it is only by such a conference, conducted in that spirit of good fellowship for which the "Amateurs" are renowned, that we, as a federated body representing some hundreds of opinions in each State, may combine our ideas for the common good. From such Conventions have come some of the basic rules and regulations which we regard as everyday privileges to-day, and we may be certain from the deliberations of this Convention many more will be established and adopted for the advancement of the good old game.

PREFIXES FOR 1935 B.E.R.U. CONTEST.

Via E.L.S.

- 20—Malta.
- 21—Mauritius.
- 22—Newfoundland.
- 23—New Zealand and Chatham Is.
- 24—Nigerian, Sierra Leone, and Gold Coast.
- 25—Papua and British New Guinea.
- 26—Palestine and Transjordania.
- 27—Rhodesia.
- 28—Singapore, Borneo, and Malaya.
- 29—St. Helena.
- 30—Union of South Africa.

No.

- 1—Ascension Islands.
- 2—Australia—VK2, 3, 4, 5, 7, 8.
- 3—Australia—VK6.
- 4—Barbados, Leeward and Windward Is.
- 5—Bermuda.
- 6—British Guiana, Trinidad, and Tobago.
- 7—British Honduras.
- 8—British Is.
- 9—Burma and Andaman Is.
- 10—Canada—VE1, 2, and 3.
- 11—Canada—VE4.
- 12—Canada—VE5.
- 13—Ceylon, India (South of Cancer).
- 14—Egypt and Sudan.
- 15—Hong Kong.
- 16—India (North of Cancer).
- 17—Iraq.
- 18—Jamaica, Cayman, Bahamas, Turks, and Caicos Is.
- 19—Kenya, Uganda, Tanganyika, and Zanzibar.

The rules for the 1935 BERU Contest will appear in the November "Bulletin." Numerous changes have been made, the most important being: (a) The transmitting contests will take place on alternative week-ends during February; (b) The receiving contest will take place during the first week-end of each transmitting contest; (c) The contests will run from 1700 GMT Saturdays to 1700 GMT Sundays; (d) Power has been limited to 250 watts in the senior contest; (e) One point will be scored for each contact with a station in another zone; (f) Thirty prefix zones have been recorded, and all points scored will be multiplied by the number of zones worked on both 7 and 14 m.c.

Adjustment and Operation of Modulators

With Rectox and Thermal Instruments.

(By courtesy of Westinghouse Electric and Manufacturing Co., through Alan S. Duke Pty. Ltd.)

Some Hints on Modulation.

Successful operation of an amateur 'phone transmitter does not depend entirely on the proper adjustment of the modulator and modulated amplifier. Mostly it is dependent upon the operation of the modulator within the limits determined by the adjustments. The necessity of observing this fact is demonstrated by the care with which the broadcasters carefully "ride gain," not only at the station, but at several other intermediate points. Care is taken to see that the gain used never reaches that required to modulate the transmitter 100% on peaks, in fact the limit seldom exceeds 90%. With the present day high quality broadcast transmitter having its modulated amplifier amply excited, and modulator capacity far in excess of that required for 100% modulation, excessive gain must be avoided. With the trend of the amateur 'phone towards Class B modulation with its high capacity, and the Class A modulator combined with the dropping resistor, and so on, the amateur is placed in a position where he must also "ride gain," or suffer the penalty of poor modulation.

Modulation in excess of 100% on peaks manifests itself in several ways, the most objectionable being distortion, production of harmonics, frequency modulation and instability, in the order mentioned. Distortion is not always noticeable on speech, but on music it is more easily recognised since it affects the quality, often causing a violin to sound like a clarinet or some similar startling change. Harmonics produce objectionable interference at other frequencies and the quality on them is usually poor. Frequency modulation, while present to a very slight degree in any modulated amplifier, will cause the carrier and sidebands to occupy a greater portion of the band than necessary, and on the present day high selectivity

receivers of the "single signal type," often produces a signal of low intelligibility. Instability, while usually associated with the modulated amplifier, is encouraged with excessive modulation. It produces a hash or smattering that may be detected at almost any frequency. A combination of these results of over-modulation will cause a carrier to occupy a wide band, the modulation changing to a hash extending many kilocycles on either side, often to the extent of occupying the entire 'phone band.

Every amateur operating a 'phone transmitter should install some sort of an indicator by which he may gauge the extent to which he is modulating, and then faithfully try to operate so that his transmitter emits a clean cut carrier with intelligible modulation. In a preceding folder, F. 8321, methods of determining the operating limits of a modulated amplifier were given. The next step is the adjustment of the modulator.

The modulator—whether it be Class A or Class B—must have sufficient capacity to fully modulate the amplifier. It must be capable of producing or causing a voltage change under load the peak value of which is equal to the unmodulated plate voltage of the amplifier. It must operate stably under these conditions and be free from distortion.

These are several things that will affect frequency response in a Class A modulator. The output choke affects the lows if it is not of sufficient impedance. It should be at least 20 henries, have a low d.c. resistance, and contain enough core so as to prevent saturation. The bypass condenser across the dropping resistor should be large enough to pass low frequencies. Since this condenser is not subject to voltages more than double the drop across the resistor, it is unnecessary to use a high voltage condenser. Use of 16 to 20

microfarads will assure an impedance low enough to pass all frequencies down to 30 cycles. All other frequency response troubles lie somewhere in the audio system, preceding the modulator input transformer.

Use of a large r.f. by-pass condenser across the plate supply of the modulated amplifier will cause a loss of high frequencies. Ordinarily, this effect will not be noticed with the range of frequencies used by the amateur, but if he is interested in transmission of television or facsimile signals, the value of this condenser must be considered. Its impedance at the highest audio frequency desired should not be less than the load impedance offered by the tubes in the modulated amplifier.

Dropping Resistor and Bypass Condenser

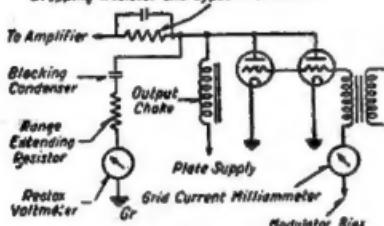


Fig. 1—Connections for Modulation Measurements with a Class A Modulator.

A properly designed Class B modulator with its driver stage, when operated under the conditions set by its design, will give little trouble.

Modulation Measurements.

Measurement of the output voltage of a Class A modulator is made best across the output choke. Measurements of the Class B modulator can be made across the output transformer if the modulator is directly connected, or across the choke if indirectly connected. Fig. 1 shows the circuit used on a Class A modulator. Fig. 2 shows the circuit used on a Class B modulator, directly connected. Fig. 3 shows a Class B modulator, indirectly connected.

The voltmeter used should be of the high resistance type, either thermo-couple or Rectox. The Rectox type is recommended since it draws less than a millampere, and will not detract from the accuracy of the reading taken. The error with the Rectox is negligible. Thermal voltmeters draw from 5 to 10 mils, while

the induction type voltmeter often consumes more power than the amplifier, and has considerable frequency error as well.

Since Rectox voltmeters are ordinarily not made to reach such high voltages as produced by the modulator, it will be necessary to extend the range of the instrument used. This is done by providing an external resistor, the value of which is determined by the sensitivity of the instrument used, and the voltage it is desired to measure. The selection of the Rectox instrument will probably be determined by its utility around the "shack" when not used for modulation measurements. The range extending resistor can be constructed of small wire wound resistors. These resistors should be so located as not

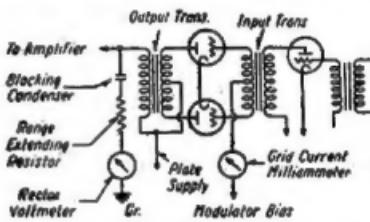


Fig. 2—Connections for Modulation Measurements on a Directly Connected Class B Modulator.

to be subjected to inductive or r.f. pickup from either the modulator or the amplifier. The frequency error is surprisingly small. The total resistance of the complete resistor should be determined accurately. It is suggested that the range of the Rectox be extended 10 or 100 times, since it can then be read directly. If it is not possible to do this conveniently, a curve may be plotted and the reading taken therefrom. The method of determining the value of range extending resistor required is as follows:—For the 1,000 ohms-per-volt type, add 1,000 ohms of external resistance for each volt the range is to be extended. For the 2,000 ohms-per-volt, add 2,000 ohms, and for the 5,000 ohms-per-volt type add 5,000 ohms. Example: To extend the range of a 10-volt, 1,000 ohms-per-volt type, to 1,000 volts requires 990,000 ohms. This may seem a large order, but the small wire-wound resistors are available in almost any size at reasonable costs from several reliable manufac-

turers. The range extension required depends upon the individual plate supplies used.

Determination of Modulator Operating Limits.

The procedure for determining the operating limits of a modulator are as follows:—Measure the plate voltage at the modulated amplifier tubes. Remember that the chokes and transformers have resistance, and the voltage drop through them may be considerable if the current is high. Connect the Rectox voltmeter with its external resistor as indicated in either Fig. 1, 2 or 3 as your case may be. The condenser indicated should be from 2 to 4 microfarads, and of suitable voltage rating, since it is sub-

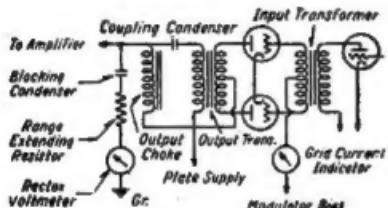


Fig. 3—Connections for Modulation Measurement of a Class B Modulator, Indirectly Connected.

jected to the plate voltage. Its purpose is to block out d-c. and isolate the instrument. By placing the instrument at ground potential, it may be switched to measure the level of the applied audio voltage at some convenient point, usually in the speech amplifier. It is often desirable to replace the instrument with an equivalent resistor when it is removed from the circuit, so as not to disturb the loadings of the circuit. By placing a sensitive milliammeter in the grid circuit of a Class A modulator, the point at which the tubes draw grid current may be observed. It is customary to employ a grid current indicator in the grids of a Class B modulator.

The speech amplifier usually associated with the modulator will ordinarily provide enough excitation for the test. An audio oscillator, either of the vacuum tube type or of the tuning fork type, should be used, since its output can be kept constant for taking readings. It is advisable to use 1,000 cycles, since this is near

the centre of the band normally used in voice frequencies.

After connections have been completed apply an audio voltage which gives a modulator output voltage equal to about 10% of the plate voltage, and then increase in 10% steps. Take readings of input and output voltages, and grid current for each change. In the case of the Class A modulator, do not continue to increase the input after grid current is indicated. Readings should be taken up to a point where the output voltage is equal to 78% of the unmodulated plate voltage. Plot these readings on cross section paper, plotting input against output and grid current. In making these tests from which data for the curve is obtained

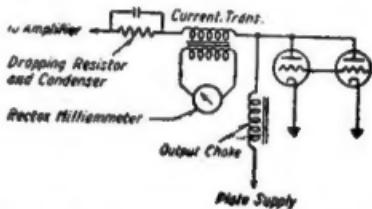


Fig. 4—Modulation Indication by Means of Measurement of Audio Component of Modulated Plate Current with a Current Transformer.

it is advisable to use a dummy antenna.

The Class A modulator should be able to deliver the required output voltage without evidence of grid current. If the curve plotted as the result of these tests is a straight line, and the modulator does not heat unduly, it will have sufficient capacity. If the curve flattens out, or the tubes draw grid current, the modulator is not large enough. It is then advisable to increase the number of modulator tubes used, or, if this is not possible, it is best to increase the dropping resistor used and thereby lower the requirements of the modulated amplifier. The plate current of the modulators should show no change when modulation is applied.

The curves for the Class B modulator will differ slightly.

No attempt will be made to discuss the design of a Class B modulator. It will be assumed that the amateur has followed the conventional methods in designing his transformers and is operating the tubes

in the manner called for in the design. Care should be taken to keep the tubes balanced. The plate power supply of the Class B modulator unit should be of high capacity and good regulation, since the direct current requirements fluctuate from almost zero, upward. Most of the difficulties arise in the driver stage.

Considering the parts of a Class B modulator and their functions separately will simplify matters. The input voltage-grid current curve has a direct bearing on the operation of the driver stage of the modulator. This curve indicates the operating characteristics of the driver stage, and it should be linear. Since the driver stage is usually operated Class A, except in a few high-powered

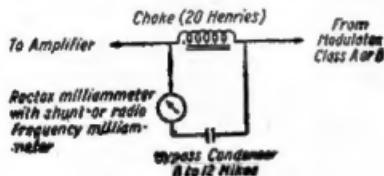


Fig. 5—Measurement of Audio Component of Plate Current with Choke and Condenser.

broadcast stations, its operation and adjustment are substantially the same as described in the preceding paragraph. It should be capable of delivering sufficient power to operate the modulator. Also, in order to keep distortion in the driver stage at the minimum, it must be worked well below its Class A undistorted output rating. Low capacity of the driver stage can be corrected by increase in tube capacity or an increase in plate voltage.

If the input voltage-grid current curve is linear, the output of the power stage of the Class B modulator should be found to be the same. The output voltage curve should be linear up to a point where it is equal to 78% of the unmodulated plate voltage applied to the modulated amplifier stage. If the curve should flatten out before this point is reached, it usually indicates poor regulation of the power supply, or low emission in the tubes. Proper steps should be taken to correct these difficulties. A few troubles encountered and their cause are as follow:—Too high a bias

causes modulation to be "sandy" or blurring. The microphone will appear to be insensitive on weak speech or room noises. Low bias often will cause the tubes to heat and the output usually will be lower.

Modulation Indications.

Having adjusted the modulating system for proper operation, it is now advisable to install some indicating system so that the modulation always can be kept within proper operating limits. A number of circuits will be described and the final choice left to the amateur.

Measurement of audio component of the modulated plate current as fed to the modulated amplifier is probably

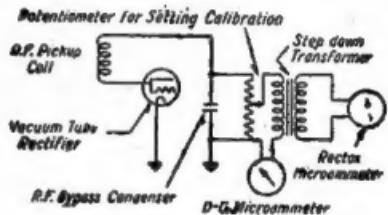


Fig. 6—Modulation Measurements by Means of a Vacuum Tube and a Rectox Microammeter

the oldest method used. This makes use of a current transformer placed in the high voltage circuit, either in the positive lead or in the negative lead, if means of isolating the current drawn by the modulated amplifier are at hand. The transformer ratio is dependent upon the instrument used. If the range of the instrument used is equal to the plate current of the modulated amplifier, the ratio is one to one. The method of determining the transformer ratio is as follows:—Plate current divided by full scale reading of the instrument is equal to the ratio of the secondary turns to primary turns. The transformer is constructed with an air gap to prevent saturation. It should be wound with large wire.

This method often introduces some distortion. Since a thermal meter is somewhat sluggish, the use of a Rectox milliammeter is recommended. The range of instrument chosen depends upon individual requirements. See Fig. 4.

The audio component of the plate current may also be measured by inserting a high impedance choke of low d-c resistance in the high voltage

lead, and by-passing this with a large condenser. The audio component will flow through the condenser and may be measured with a suitable meter. The full scale reading of the instrument should be equal to the direct current through the choke at least. This circuit will not introduce distortion. See Fig. 5.

A Rectox milliammeter can be used in this circuit, but it is necessary to provide a shunt for this type of instrument, since it is extremely sensitive. However, a large range of r.f. milliammeters are available and they are more suitable.

The use of a Rectox voltmeter of suitable range, placed directly across the line, somewhere in the audio system, is recommended if the system permits.

For those who use Class B modulation, the calibration of the grid current indicator in the grid lead of the modulator may prove satisfactory. See Figs. 2 and 3.

The method of employing a grid bias vacuum tube voltmeter, connected across the line at some suitable point, is another popular way.

The following methods make use of the modulated r.f. output, and are not highly recommended; calibration of the antenna ammeter so as to indicate a 22% increase with 100% modulation; calibration of an r.f. milliammeter and small coupling coil for 22% increase with 100% modulation.

A double rectifying device employing two tubes, one as an r.f. rectifier and the second as an audio rectifier, has proven quite satisfactory. An improvement on this scheme in which the last tube is replaced with a Rectox instrument, is shown in Fig. 6.

It is recommended that upon final installation of an indicating system, that it be calibrated by running an operating characteristic curve on the modulator.

The Rectox instrument is not subject to frequency error over the ranges of audio frequencies employed. It is almost instantaneous in response to modulation and in some cases will give peak readings. Thermo-couple instruments are available in a wide range of current ratings effected.

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The R-S-T System

By VK3ML, with acknowledgments to
the originator, W2BSR.

Like a bolt from the blue, we read, in October, QST and T & R, of a new system of signal strength reporting. As this code appears to be a new standard for the amateur throughout the world, we are publishing it below, in brief, for the benefit of our members.

It is only natural to expect any suggested alterations to the long-established amateur standards to be

we may all agree that our friend, the "T" system, has been seeking a successor for a long time, mainly because it did not accommodate certain types of signals, such as, crystal AC notes, etc. Why, in the name of amateur radio, has the "R" code not been left "as is"? W2BSR's signal strength code from 1-5 will take a lot of getting used to. Not only does the difference between R6 and R7 mean such a lot to the DX man, but there IS a

"R," READIBILITY.

1. Unreadable.
2. Barely readable—occasional words distinguishable.
3. Readable with considerable difficulty.
4. Readable with practically no difficulty.
5. Perfectly readable.

"S," SIGNAL STRENGTH.

1. Faint—signals barely perceptible.
2. Weak signals.
3. Fairly good signals.
4. Good signals.
5. Very strong signals.

"T," TONE.

1. Extremely rough hissing note.
2. Very rough a.c. note—no trace of musicality.
3. Rough low pitched a.c. note—slightly musical.
4. Rather rough a.c. note—moderately musical.
5. Musically modulated note.

6. Modulated note—slight trace of whistle.
7. Near d.c. note—smooth ripple.
8. Good d.c. note—just trace of ripple.
9. Purest d.c. note.

If it appears to be crystal controlled, simply add an X after the appropriate number.

received with both approval and dissent. It was hard to make ourselves accustomed to the QSA code when it came into being, but, it eventually grew on us just as the "T" code did. Now we have to make a complete change and forget all we ever knew about them. From all accounts, the Ham was satisfied with the QSA and "R" reporting systems as, when correctly and intelligently used, could convey all one wants to know about one's signals. However,

difference, and that is between a good signal and a darned good signal. To be without the intermediate numbers will be like having a currency without a decimal or fractional coinage to go with it. To the scientific or experimental Ham, the "S" part of the R-S-T code is certainly weak, because an adjustment to a transmitter or an aerial array may increase the signal strength from R6 to R7 in the old code, but cannot be shown in the new one.

Nevertheless and notwithstanding the above objections, it is apparent that the attempt of W2BSR to attain a more definite object is a move in the right direction, and we must adopt and ratify our new standard right away, and here is how it is to be used.

"R" stands for "readability," and it is only the QSA code with the new handle. "S" has cut down the signal strength reporting code from R1 to R9 to S1 to S5 as per table below. "T" stands for the "tone" as in the past, but with considerable modifications. A report is sent in the order of R-S-T, and should never be deviated from. As an example: "Ur RST 347X QRM" would signify: "You're readable with difficulty; signal strength good; crystal controlled, near DS note — smooth ripple; interference." The "X" indicating crystal control of course. Other statements, such as fading, chirping, frequency creep, etc., must be indicated in full with the appropriate "Q" sign or plain language. In order to incorporate the extent of fading, one may combine the maximum and minimum signal strengths separated by the fraction sign. For example: "RST 3 5/2 8" shows that the signals fade from "very strong" down to "weak," making reading difficult, despite a good DS note. W2BSR suggests that after we have become used to the system, the letters RST can be dispensed with altogether, but, until it is universally adopted, they should be transmitted. Here, below, is the code, and we suggest you copy it out and hang it on the wall in front of you till its use becomes second nature.

Correspondence

2 Park Lane, Hyde Park,
Townsville,

December 5, 1934.

The Editor, "Amateur Radio,"

Dear Sir,—Referring to the "Operating and Experimental Section" by VK3WY in the November issue of "A.R.," in which the misuse of the "end of work" signal (SK) is discussed: I have always understood that the signal simply indicates the end of work between two stations, to be followed by the call sign of the station signing off.

The A.R.R.L. says that, after using SK, you should search the band for stations calling you before calling CQ or another station. According to this it is wrong to use SK unless in a position to search the band afterwards.

On the 7 mc. band it takes a couple of minutes to go through the band in the evenings, and to call any station on the strength of his signing SK seems to me to be a waste of time, and to cause unnecessary QRM. I should think that there is very little chance of a station using under 25 watts being called after his SK, unless there are very few stations on the band being used.

It is quite likely that the station signing SK is listening to the last over of the chap he is testing with, or that he has to leave his receiver for the time being. Perhaps the signal "CL," or something more appropriate, should be used when unable to listen after end of a QSO.

I have frequently followed the end of a QSO with a CQ call, and I can't see any harm in the practice, provided, of course, the call is sent in the proper manner, i.e., from 4 to 6 CQ's followed by call-sign, and repeated from, say, 1 to 5 times according to conditions and speed of sending.

Yours faithfully,

R. L. BELSTEAD.

Clareville Avenue,

Sandringham, N.S.W.,

November 29, 1934.

The Editor, "Amateur Radio,"

Sir,—The notes by 2MY on page 26 of the November issue of "Amateur Radio" call for some comment in regard to the so-called encroachment of Semi-Commercial Stations on the 7000-7300 K.C. band.

It should be remembered that the so-called Amateur bands are really frequency allocations available for the use of licensed experimenters. It should also be remembered that call-signs such as VME and VMG, when used by experimenters who already have other call-signs, cannot cause any more interference than if they used it to grind out the eternal CQ. Bear in mind that these stations are doing work which, while interesting to themselves, also is useful and important.

I am, yours faithfully,

A. G. HENRY, VK2ZK.

Operating and Experimental Section

Conducted by VK3WY.

DX CONDITIONS.—There are not many reports to go on this month, but, from local observations, all the bands have been rather patchy, but improving; sometimes conditions have been definitely poor, and at others just as definitely good.

7 MC.—During the early mornings, European DX may be worked fairly reliably on this band, G, ON, D, and EA stations being about the most consistent here. The evenings have been a bit patchy, but on good nights far more than the usual number of VE stations have been worked, and both they and the W sigs. have reached remarkable strength. When working W6GRL the other night, he complained at only getting r8; said I was the only VK out of half a dozen worked to give him less than r9. He admitted having used one kilowatt, but wouldn't let on to more than that!

14 MC.—This has been the real DX band for the last month, and many 'ams' hearts have been gladdened by working S. America for their W.A.C. During the afternoon quite a few S. Africans have been worked, but the band gets particularly good from about 1700 to 2400. During this time, VP5, SU, CM, CX, LU, ON, and J have been worked. The S. Americans are more consistent than I have heard them for years.

28 MC.—It has been quite a while since we have been able to class this band as a DX band, but latterly the skip distance on this band has seemed to be lengthening out, and, during the last few weeks, quite a number of ZLs have been worked. We should be hearing old W6BAX again soon.

KEYING.—Here are a couple of hints which may be useful to those who have had trouble with clicks, etc. The first is a method which may be used by anyone using link coupling between stages. The method is extremely simple, and merely consists of placing the key in the twisted pair line between stages. Even in high power rigs, the actual current carried by these lines is very small. No click or thump filter is necessary about the key, nor is it usually desirable.

The second method may be used with CC rigs using a pentode as CO. Keying in the centre tap usually eliminates clicks, but this may be made more certain by keying in the auxiliary grid lead. If the CO is a tritet, however, the plate voltage should not be higher than about 350 volts, if complete cut-off is to be obtained.

28 AND 36 MC. SECTION.

(Conducted by VK3JJ.)

Tests with New Zealand.

VK 28 mc. enthusiasts are requested to log all ZL and VK6 stations heard and worked during December, January, and February, as tests in conjunction with the N.Z.A.R.T. are in progress.

The following schedule has been arranged for each Sunday during the above months:

Commencing at 22.00 GMT (8 a.m. EST) and ending at 14.00 GMT (8 p.m. EST), ZL stations will call during the first ten minutes of every hour. VK2, 3, 4, 5, and 7 will call during the second ten minutes of every hour, and VK6 will call during the third ten minutes of every hour.

This leaves the second half of each hour free for random work.

Please forward logs to your U.H.F. representative at the conclusion of the test period, and to decide the most reliable VK for ZL contacts. Points will be allotted on the system of the R.S.G.B. International 28 mc. Contest.

28 mc. IN NEW SOUTH WALES.

Conditions experienced from the end of November to the third week in December can only be described as most extraordinary. Leaving out the daylight QSO's with ZL, what about the interstate QSO's every night? Sounds more like 3.5 mc., but it's 28 all right!

2HZ, 2HY, 2NO, 2SA and 2LZ have each worked two or three ZL's, and the latter has put good phone through to ZLICD, VK3, and VK4. He also made the first VK6 QSO since 1930!

2XY, 2BX, and 2YC must be the "Jonahs," because as long as they were there were no decent contacts. A newcomer to the band was 2FG, and, considering he only received his licence on Nov. 21st, it was quite a feat to have three 28 mc. QSO's on Dec. 9th. 2DQ, 2XO, and 2BX, the latter having been ill, have yet to "break their ducks!"

The most intriguing question of the moment is: Were all the contacts due to abnormal weather conditions, or has the skip altered? G2FN (old XU2UU) inclines to the latter view, but by next month we will have a much better idea of things. . . . VK2YC.

WESTERN AUSTRALIA.

On Sunday, November 18, a ten-meter field day was conducted, and took the form of a DF hunt. VK6SA operated the hidden transmitter which employed a conventional push pull TNT circuit,

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with 201a valves operating from an auto B eliminator. The transmitter was on the air for two hours putting out phone and ICW. Six cars equipped with receivers started in the hunt, but only three were successful in hearing the signals, while none were able to locate the transmitter. As a cup had been donated for the first party finding the transmitter, it was decided to allot points. The judge (VK6SA) had a difficult task in deciding the winner from the three parties who heard the signals and took bearings, but finally VK6MN was declared the winner.

After a good start the previous Sunday, December 2, provided further interstate opportunities, and VK6SA contacted VK2LZ, VK3JJ, and VK3RJ. VK3OF and VK3BQ were also heard. VK6MN and VK6CP were both on the air, but owing to the wrong coil being in the freq. meter the former was listening on about 14 metres. Hi.

VK6MN heard both VK4BB and VK5HG on December 9, but was unable to QSO. VK6SA was successful in working 5HG, but did not hear 4BB, owing to being late in getting on.

Judging by the way harmonics from Japanese commercial stations have been coming through, conditions seem favorable for 10 metre contacts with that country, but apparently there is little activity among the J hams on this band.

Commenting on the contacts of November 25, a local BCL rag states that it was the first time in radio history that VK had been spanned on 10 meters. They are only six years out, as any old-timer on 28 mc. can tell. . . . VK6SA.

GENERAL.

The improved conditions experienced on 28 mc. seemed to extend to all States and N.Z., and many ZL contacts marked the opening of the VK/ZL tests.

VK3's were surprised to hear ZL1CD handing over an R7/8 CW signal, while at times he was R6 on phone. ZL3AJ is weaker than 1CD, but much more consistent, and has had no less than 18 VK QSO's to date! ZL1FT and ZL1BA, the latter with only 8 watts input, have worked a number of VK's between them, but nothing has yet been heard of ZL1AB, ZL1GC, and ZL1GX, who are also active. VK3's who have either worked or been reported in N.Z. so far are 3CW, 3ML, 3BQ, 3RJ, 3HK, and 3JJ.

VK4BB can be worked almost every night in Vic., but his signals are never quite as strong as those from VK4XN.

On Wednesday night, Dec. 5, conditions were extremely good, and at one time, between 9.30 and 10 p.m., 2LZ, 2HY, 2SA, 2NO, 3JJ, 4BB, 7NC, and ZL3AJ could all hear each other, and several good QSO's resulted. 3FM later contacted 2HY at 11.30 p.m.

3ML, 3WX, 3WC, and 3FM, all of whom did good work on 28 mc. some years ago, are back again and putting out strong signals. 3JO and 3KD are new to the band, and are not yet satisfied with their receivers. 3NM has been rebuilding, and missed the peak of the DX, but his signals are now even better than before.

VICTORIAN 28 mc. CONTEST.

A UX250 and a pair of 81's have been generously donated by Messrs.

Falkenberg and Orbohm, respectively, and will be awarded the winner of a contest to be held on January 18 and 20, and March 3 and 10 next. The contest begins at 00.01 and ends at 23.59 EST on the above dates, and six hours must elapse before an additional QSO with the same station can count for points.

The co-operation of Interstate and N.Z. stations will be appreciated.

The contest is open to all VK3's, and if a list of rules has not been received, they will be sent on request to VK3JJ.

INTERNATIONAL 28 mc. CONTEST.

The following is an approximation of the points obtained till December 12:

VK4BB	270	VK4XN	127	VK6SA	112
VK3JJ	111	VK2LZ	100	VK2HZ	62
VK3RJ	62	VK2NO	60	VK2SA	60
VK7NC	57	VK3WC	52	VK3OF	48
VK7KV	40	VK3ML	39	VK2BQ	30
VK8JO	22	VK6MN	22	VK5HG	20
VK3NM	17	VK3FM	18	VK3YC	11
VK3WX	9	VK3CW	9	VK2PN	7
VK2XY	6	VK3EP	6		

IN REPLY TO VK2TH.

Yes, I am the guy called "QRZ," Who never spends his time in bed. And many a night I sit and listen To all the notes with something missing.

I flatter myself I know DC, And can tell the difference from RAC. I am not regarded as much of a wit, But some notes are punk—you must admit.

I got a kick in the neck one day From a bright young spark called Halliday,

But along comes a chap called 5LD, And lo and behold he sides with me. And at my station my note's T9, My sig. never causes others to whine, And when I have to send CQ I don't keep going, as some others do. Now I have my faults, of course, I know, But I always consider the other chap's show,

And if I'm told I'm causing trouble, Why, I jump to fix it—at the double. Now, 2TH, I like your style, And at your poem I raise a smile. A sense of humour I hope I've got, And to QSO would please me a lot. I'm sorry I cannot sign my name, For the Editor says I must refrain, And so at last I QRT, Remaining to you—just "QRZEE."

All district notes should be in the Magazine Secretary's hands on or before the 18th of the month.

The "505"



The latest addition to their 2½ in. Instruments

0.50 Millivolts D.C.

0.5 Volts A.C.

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Victorian QSL Bureau.

By R. E. JONES, VK3RJ, QSL, MGR.



Cards are on hand at the above Bureau, 23 Landale St., Box Hill, for the following stations, and a stamp will ensure their prompt despatch:-

VK2AT, AX, AY, BB, BF, BX, CF, CJ, CL, CM, DD, DQ, EM, ES, ET, EW, EG, FC, GE, GU, GW, GX, GY, GC, HE, JC, JK, JZ, KA, KQ, LP, LT, LX, LZ, MH, MS, NG, NR, NW, OP, OV, OY, OZ, PT, PW, PZ, QZ, RQ, RT, RW, TD, TM, UJ, UW, VU, VL, WC, WK, WP, WN, WX, WZ, XD, XF, XX, XP, YF, YL, YV, ZK, ZL. Messrs. BENNETT, CAREY, ADAMS, MAWMAN.

PY1HD complains that the following hams owe him cards. As he was conducting specific tests when these stations were worked, the cards are of particular value to him:- VK3 eg ht mr yo zl, VK2vq xd xv hu lz rk gm my uy vq.

George Watson, ex VP6SR, ex Zelje, of Southern Rhodesia, and now an op. on the R.M.S. Cathay, passed through Melbourne twice during December.

Z11FT heard the following Vks. on ten metres early in December: VK1IZ, 2SA, 2NO, 3JJ, 3RJ, 3ML, 7NC. The following Z1S are active on that band: Z1, 1BA, 1CD, 1GX, 1AB, 1FT, and 1AJ.

The writer is due to commence six months' furlough as from January 7, 1935, and expects to while away the time on an extended motor tour of VK2, 3, 4, and 5. A qrp portable under the sign XKV3RJ will accompany, and reports and QSO's will be welcomed. As many ham shacks as possible will be visited, and the tentative itinerary is as under:-

January—Melbourne to Adelaide, via main route, returning via Western District.

February—Tallangatta, Albury, and Goulburn Valley Districts.

March—Warburton, Alexandra, and Mansfield District.

April—Gippsland, Omeo, and Bright District.

May - June — Sydney, via Princes Highway, Newcastle, Northern Rivers, Brisbane, Townsville, Cairns, and return from Sydney, via South Coast.

June - July — Bendigo, Ballarat and District.

As the main objects of the trip are fishing and recuperation from the multifarious tests of the past year, the dope on "prolific" fish streams, and the ruses employed in the capture of the denizens will be welcomed. The work of the QSL Bureau will be carried on as usual.

The number of VK7 stations interested in the 6-point relay could be

counted on the thumbs of one hand, while the interested parties in VK5 and VK6 constituted two in each of these States. It must be disappointing to F.H.Q. to organise a test, and meet with such a poor response.

Why did F.H.Q. depart from the set rules of the last QRP test, and adopt an illegal basis for the distribution of the points. This illegal act wrongfully gave VK4 the winning points to the disadvantage of VK3. The VK8 division has been asked several times to move in rectifying the matter, as once rules are laid down for any test they cannot be broken even by F.H.Q. This may be one reason for the poor entry in the 6-point relay test.

(The controlling and unavoidable condition is that the judge's decision is final.—Ed.)

BOOKS REVIEWED.

By the Technical Editor.
(Recent imports of McGills Agency,
Elizabeth Street, Melbourne.

Theory of Thermionic Vacuum Tubes, by E. Leon Chaffee, Ph.D.—This excellent text book might well serve as a reference book for those who keenly follow the latest developments of vacuum tube theories, as it is based on the author's lecture notes given during a course on this subject at the Harvard University. Commencing with the elementary principles of molecules, atoms, etc., he carries the subject through well-defined chapters dealing fully with diodes, triodes, up to the latest multi-grid tubes, explaining their operation in clear theoretical phraseology. This book has much to be recommended to the advanced experimenter. Price, 49/6.

Electron Tubes in Industry, by Keith Henney, Associate Editor, Electronics.—The experimenter who carries his electrical knowledge into industrial fields and applies automatic electrical devices to machinery, etc., will be particularly interested in this publication. A brief theory, and the construction of thermionic tubes of the amplifier, gaseous, and cathode ray type, is treated in the earlier chapters. The author delves well into the uses and application of photo-electric cells in industry, and makes it clear that such tubes are indispensable in modern works. Many ingenious units are described, such as: humidity and temperature controls, color measurement control, recording photometers, ultra micrometers, etc., etc. A book certainly of interest to the industrial world. Price, 39/6.

Divisional Notes

Association of Radio Amateurs (N.S.W.).

HAM DOINGS. By 2HZ.

The Interzone Contest run by the A.R.A. was fairly successful, although the number of entrants was not up to expectations.

The entrants, on the whole, vowed they had a good time, and the traffic experience was beneficial, and after all that is all that matters.

It is believed that 2KR will be the winner and 2NP second, although that position may be reversed as 2NP's score for the first week-end was fairly close to 2KR's full score. 2BP will be well up, as will 2LQ, 2FQ, 2OU, and others.

The agenda for the next Federal Convention has been discussed very fully amongst the members, and some of the suggestions, if followed, should be a success. 2FQ will possibly accompany 2HZ to Hobart and the Convention as a second A.R.A. delegate to the Convention. They will be coming back via Melbourne, and hope to meet many of the VIM gang.

ZELJC has been a visitor in Sydney, and is a wireless operator aboard the "Cathay." He visited the A.W.A. transmitting centre at Pennant Hills, and the shacks of 3HG, 2LZ, 2HY, 2BA, 2DR, and 2HZ. He was shown round with the aid of Bill Clive's car. Bill is a well-known Ham to be. ZL2KY is also staying in Sydney; but so far hasn't been able to get about very much. 2HY and 2LZ are still on 28 mc., recuperating after the strenuous Centenary Contest. 5FM will be over in Sydney shortly holidaying, and he and his wife will stop with 2DR.

2FQ lectured at the December meeting of the A.R.A. on Wave Motion, a continuation of a previous lecture on that subject by 2ZR.

The Council of the A.R.A. wish everyone the Compliments of the Season, and hope that Amateur Radio will continue to prosper. They also thank all the Radio Clubs and individuals who so kindly have supported them during the past year.

ZONE 2. ZO—2HV.

The following calls are those of all stations in Zone 2 up till October, 1934: 2HC, 2BE, 2KR, 2CR, 2KN, 2WT, 2ZP, 2ZH, 2UR, 2RV, 2NF, 2JF, 2NA, 2HJ, and 2HV.

2NF is not on yet, but expects to be on with crystal very soon.

2UR and 2NA are listed among the absentees.

No news to hand on the doings of 2WT yet, although he is expected to be on now that shearing has finished at Tenterfield.

2HC-2BE inactive at present. Must be fumigating time at Quirindi again, I say, or possibly the typewriter has been working overtime with BERU business.

Arthur of 2ZP recently went back to VK4—after calling CQ. Evidently the receiver at 2ZP is none too good, as six Americans were heard answering his call.

Ron of 2RV is giving MOPA a go after having tried several self-excited rigs.

2KN has not been heard for some time now. Possibly Eddie is on a vacation at Spring Ridge.

Mac, of 2ZH, has been very busy, completely rebuilding B class station 2MO, and has not had time to put his transmitter on the air since leaving Sydney.

The low power merchant, Cess, of 2KR, has hopes that Gunnedah will have AC ere 1934 passes.

2HJ is a new one at Quirindi, and has not been heard at 2HV yet.

2JF is, as usual, inactive.

2CR has been confined to 80 metres, as he has no coils wound for the other amateur bands for the four stage rig. 80 certainly doesn't sound too good at this time of the year, Lionel.

2HV spent the first two years chasing DX, and gave it up as a bad job. A new antenna was constructed lately, however, and the first month yielded eleven countries on 40 metres with 8 watts.

Cess and his 3 watts are doing great work for Zone 2 in the contest, and if we don't win don't blame 2KR.

2HV, due to BCL's and skip, did not do too well during the contest, but had a great time with the second operator.

Bill Picknell, originating 40 messages, 2RV and 2CR were the only other Zone 2 stations on during the contest, and, according to reports, were not too successful.

Thanks to 2KR, Zone 2 was well represented, and it is to be hoped that Cess gets one of those tubes for his good work.

ZONE 5. ZO—VK2BP.

Zone 5 has been very quiet except for the continual barrage of QRN caused by the ever-prevalent thunder storms over the mountains. There are only four hams in this zone at any rate, so we cannot be expected to make a great deal of noise.

2RJ is heard once in a while on 80 mx, with a heavily modulated tone signal. 2BC has been heard once in twelve months, and Trevor, 2NS, finds time occasionally to have a short QSO.

It is particularly noticeable here that the usual summer conditions on the higher frequency bands are only conspicuous by their absence. As a rule, from the end of October to about Easter time, reliable communication can be kept with local stations on the 40 mx. band; but so far this summer only one day has brought forth the desired effect; skip still being very much in evidence.

For weeks the usual easy contacts with the U.S.A. have been "non est," only an occasional R3 to R4 signal breaking through the static, whilst

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Europe and Asia have not been heard since the Centenary Contest.

2BP put in a couple of Sundays on the recent A.R.A. Zone Contest; but is disgusted with his poor showing, caused by the positively punk conditions over the last day. If conditions such as prevailed over the first Sunday had held up, another 300 points could have been raked in. Still it was practice for the six pointer.

2KR looks the winner of the A.R.A. test, with 2NP a close second. Great credit is due to 2KR for his excellent operating ability, and for the efficiency of his QRP station.

WAVERLEY RADIO CLUB. (Affiliated with A.R.A.)

The following officers were elected at the half-yearly general meeting of members held in the club-rooms, 13 Macpherson Street, on Thursday, November 1:-

President, Mr. G. A. Wells; vice-president, Mr. H. F. Petersen (2HP); hon. secretary, Mr. W. Garland; asst. secretary, Mr. E. Johnson; treasurer, Mr. H. Martin (2FW); auditors, Messrs. Lusby (2WN) and Charles (2GC); technical committee, Messrs. Wells, Foley (2RQ), Lusby (2WN), Weston, and O'Brien (2OH); magazine committee, Messrs. Wells, Charles, Hainsworth, and O'Brien; publicity department, Mr. N. E. O'Brien (2OH).

The publicity officer desires to thank the members for his re-election to office, and also to congratulate the others on their various appointments, particularly Mr. Petersen, who has successfully graduated to the vice-presidency. So much for that. Hi!

Now that we are all set for another session of work, a little word about the club itself will not be amiss. The Waverley Radio Club was first formed away back in 1918, the days when King Spark reigned supreme. At that time composed of just a handful of enthusiastic members, it has since grown very rapidly, and is now one of the foremost amateur radio organisations in Sydney. The Waverley Club is very proud of its reputation as being the oldest club of its kind in Australia, a fact made possible only by the unstinted enthusiasm of former associates. We believe that at the present time no other club in this city is able to offer better facilities to young chaps desirous of becoming radio amateurs. We have trained many excellent operators in the past and intend to do so again in the future. We have the co-operation of the Amateur Radio Association of N.S.W., and the American Radio Relay League — that great organisation responsible for the growth of amateur radio all over the world. The Waverley Club have two transmitters in constant operation—one working on 40 metres for overseas two-way telegraphy communication, and the other on 240 metres operating each Sunday evening at 11 p.m. under the call sign VK2FW. The latter supplies programmes, which are available to regular listeners of the local stations.

LAKEMBA RADIO CLUB. (Affiliated with A.R.A.)

VK2LR.

The Lakemba Radio Club meets every second Tuesday at the clubrooms, 79 Park St., Canterbury. The meetings

for February and March will be on the 5th and 19th of both months. The club's membership is increasing rapidly, four new members, including three transmitting members, having been nominated over a period of two meeting nights. The lectures for last month included, "The Early Days of Radio," by 2JT, and "Direction Finding," by Mr. G. Brown. These proved of great interest.

A handsome cup has been received from Mr. Slade, 2SX, of Slade's Radio, for competition annually. The nature of the competition has yet to be determined. This makes two cups which will be competed for in two different competitions, the other cup having been donated by the "Chanax-Dulytic" firm last year.

On Sunday, December 3, the club "Social Picnic" was held at Kentucky. This was a great success, and was well attended by wives and young ladies. Tennis, cricket, and rowing were the chief sports.

As December 11 was the last meeting of the Old Year, a Club "Spread" was held immediately after the general meeting. Members brought along the necessary eats, while soft drinks, etc., were supplied by social fund. A gramophone amplifier provided music, and most members joined in community singing. Thanks is due to Mrs. Picknell for the excellent arrangement of the tables, and decoration of the clubrooms.

All particulars regarding the Lakemba Radio Club's activities will be supplied by the hon. secretary on request.

MAROUBRA BAY GANG NOTES. A.R.A. (N.S.W.).

ZO—VK2XV.

This last month has seen a failing-off of activity on 14 m.c., the Europeans being hard to raise until about 22.00 S.M.T.; but occasionally a few filtering through earlier. The first few weeks of this month saw the last of the South Americans for a while on this band; CX1CC reigned supreme for quite a while, and enabled a few VK's to obtain their WAS.

VK2XX seems to land a few as usual, and he landed YL2BB recently and had him QRX for VK2XV; but when the latter called he had disappeared. Too bad! Activity amongst the boys has dropped to a minimum lately, owing to a lot of night work and worry? Hi. VK2WJ still comes on regularly, although the last week or two haven't seen much of him. Whafor Jack? VK2FQ, Jack O'Dea, hasn't been heard for quite a while, although one night after obtaining a pick-up we had a recital of gramophone records for about two hours without an announcement. Must have been running it in, eh Jack? VK2XV has been on fairly consistently and managed to work a few SU6H6, VU2BL, and SPIDE being amongst the lucky ones. Incidentally, ZSIH has been coming through consistently for a few Sunday afternoons on 14 m.c. now and 2XU had him standing by for VK2XX and ZL3AJ, and a few more. VK2ZX is a new arrival out Maroubra district, and Ted's ambition is quality fone, and how. He confines his activities to the 7 m.c. and BCL band, although contemplating 14 m.c. opera-

Amateur Radio

tion in the near future. Ted recently did in four 50 watters all at once. Gosh, what a break!

Ten meter addicts have been having plenty of fun working several ZL's and Interstate Hams, and the Maroubra gang are seriously thinking about giving it a go.

VK2HZ and VK2NO have both been QSO'd from VK2XV. They were on 10 and 2XV on 20. They were listening on 10 and 2XV on 20. So much for harmonicas and overtones.

Something really ought to be done about harmonic suppression. It's getting quite a problem nowadays, with more Hams and more QRM arriving on the air. It only takes a couple of locals on RAC to mess up reception on 14 m.c. if their harmonics are bad, together with key clink.

That's about the lot this month, gentlemen, and incidentally will take this opportunity of wishing you all a Merry Christmas, etc., and best of DX for 1985.

NORTH SHORE ZONE. ZO—VK2DR.

The extraordinary WX in VK2 has prolonged the "DX," and has been very kind to 80 mx. Fone addicts are still up on 80 and still getting fb condx. Forty mx is good for Yanks, etc., in evenings, but is falling off in the early mornings.

2LZ, 2HY, 2HZ, 2BA, and Bill Clive (VK2ZG), escorted ZE1JC on a visit to 2DR a few nights ago. ZE1JC is mixed up with sparks on the "Cathay," which put to sea again yesterday. ZE1JC follows Ham activity closely when on ship and has some very interesting reports for the Hams he visits. Bill Clive distinguished himself by calling CQ for some time, and then deciding it was time to go home when he signed over. Dirty trick. I haven't had time to check up on missing gear yet. 2HZ left a good revolving pencil behind and will be extremely fortunate if he sees it again.

2AE must be rebuilding or something as I haven't heard him for some weeks. Maybe Dave is getting in a good silo full of sleep in preparation for the Fisk Contest this month.

2BA will be in port for about a month over Christmas, so DX on 20 mx will have a trying time. Bruce uses an 800 to squirt his sigs and a s.s. super to suck in the DX. 2BJ got himself tied up with calendar and missed the last A.R.A. meeting. Not like you, Keith OM. 2DA is active as usual with his 862 in xtai rig. 2DU is too busy with work and "Chev" car to find time for Ham radio. Dad will be back again soon, no doubt. 2EL has an 852 perking, but results so far are not up to expectations. Hope it motes better soon Eric. 2HF has been on 40. Alan's sigs are fairly weak at my QRA owing to skip.

2HG has had a run of bad luck. Was turned out of shack to make room for new maid, and then both his sticks came down. Jack is battling hard and should be perking again before long. 2HY has been on 10 mx ever since the Cent. Test. Roy says that condx down there have been remarkable, as he's worked ZL3AJ, and VK's 3RJ, 3JJ, 3HK, 3WC, 3OF, 3FM, 7NC, 4BB, 2SA, 2NO, 2LZ, 2HZ, 2XY, 2YC, etc. 2HY also had 4-way QSO on 10 mx with

3JJ, 4BB, 2LZ, which lasted 2 hours before sigs faded. Has also heard VK6SA, R4-5, but so far ND. Well, condx must certainly be remarkable on that band. 2HY is using 59 tristet, on 80 and 40, 59 dbier to 20, link coupled to 210 p.a., which is doubling to 10 mx. Tried quairupling to 10 mx in 2nd 59 but not enough drive for 210 as straight amplifier. 2HZ has been distributing his fragrance on 40 mx, 20 mx, and 10 mx, and is getting FB reports on all bands with new QRO tube. Bill worked 36 countries in a fortnight. 2HZ looks winsome in "Wireless Weekly" photo. 2IM's harmonic on 10 mx gives away the fact that Keith is on 40 mx with his T9 sig. 2IM was VK3FX, so he enjoys VK3 contacts. Heard 2JU on 40 late at night with fb T9 sig as usual. Was sorry to hear that 2KA is in hospital with appendicitis, but pleased to hear that Paul is now enjoying health and has turned BCL with the radio alongside his bed. 2KA has been finding plenty of bugs in a 2 tube SS super. 2KJ is very consistent lately. Works Yanks and handled plenty of traffic in the 10 point relay. 2KJ has nice xtal sig with slight trace of modulation. 2LZ is thoroughly fed up with DX, having shot his bolt in the Contest to the tune of a score of nearly 50,000! Con worked 70 Gs in the Contest. Congrats, Con OM. 2LZ uses MOPA with 59 osc. 46 dbier TCO4/10 dbier 800, and finally a TC1/75, with an input of about 25 watts! Now I ask you! 2LZ is browsing on 10 mx now, and has worked two ZL's, two VK7's, six VK5's (fone), two VK4's (fone), VK6SA, and appears to be leading in N.S.W. in 28 mc. RSGB Test. 2SS uses 46s in S.E. with very nice clean note on 40, and gets Ws, K6, etc., O.K.

2VQ appears to be on the air always. You take the bun, OM, for the most consistent station — VK's and ZL's all day, Ws, etc., all night, and Europeans early morning. Say, OM, are you a robot? (Hi.) 2YC is bucked with condx on 10 mx, but hasn't had much luck lately down there; however I have heard on good authority that while snooping about on 40 mx Jim WORKED A YANK. This sounds far too good to be true, and 2YC is to be congratulated on the infinite patience and care he displayed in landing that Yank. What if e doesn't QSL, Jim? 2WW is getting across to W in fine style. An F8 called him the other night, but QRM blotted him out. Better luck next time, OM. Nothing from Manly this month. Shake them up, George OM. 2VP is a budding Marconi. Listen to this one: 2VP was talking in his shack one night while QSO with 2VG, and 2VG noticed that 2VP's voice was modulating the signal. 2VG then asked 2VP to get closer to the rig and speak louder, and, lo and behold! the speech came through 100 per cent., the modulation being due to the vibration of the grid coil by the sound waves from 2VP's voice. The rig, of course, was self excited. A new era for the on-the-bread-line-ham mike-less fone outfit. (Hi.) I think that 2VP should get the bun for that easily.

Sorry to hear that a BCL station has swiped 2KB's call. I would like to convey the sympathy of the North Shore chaps to Eric (2BP), whose father passed away some weeks ago. Ian (2XC)

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has obliged with his FB Mosman notes again. Here they are:-

2WW, at Crow's Nest, comparatively new Ham, whose QRA is rather too close to that power station signing 2LZ, is using an MOPA with 45 osc. and 46 pa, with about 40 watts input. Using a half wave zepp about 50 ft. high at one end. Has succeeded in working ZL, W, VP, VQ6, AC8, KA, K6, all on 7 mc. At present he is enthusiastically hopping from band to band trying to knock up a score in the Zone Contest. He also is going to join the A.R.A. at an early date. 2VQ has rebuilt his rig, and is heard at all hours of the day and night with a XRAY note which seems to bring back the DX in fine style. 2SS is going to Nambucca Heads with a portable for Christmas. 2VG is trying out 20 mx, and finds that by keying the buffer stage he does not annoy his BCL friends so much.

As to the local boys: 2FM has been silent for a month, but this was due to his holidaying in Manly, where YL's are YL's (says Alex.). However, he has returned to the local village with renewed DX keenness. 2PV is now on again after being silent during Uni. exams. He is going great guns in the Zone Contest, and as he is Mosman's sole representative in this event he has the entire sympathy of the local gang. I for one stayed off all last week-end! 2HI has not been heard after a month's absence due to Uni. exams, but is determined to make up for lost time. Both 2XC and 2FM have ideas of rebuilding their rigs, but meanwhile indulge in long rag chews, both having found that local rag chewing offers more scope than DX hunting. Thank you, Ian OM, for that lot. And also thank you, Roy (2HY) for the lots of news you sent me as usual.

Pete (5FM) and Mrs. 5FM are paying me a visit in a few days. Whacko. The 6 point contest starts to-night, and 2YA will be arriving soon to give me a hand with a message or two. 2HZ went on 40 mx recently, worked about three Europeans straight off the handle, then hopped off down to 10 mx, grumbling about the punk condx on 40! Fair go, Bill. The Ed. of this mag. is asking for station descriptions. I hear some red hot ones from those unfortunate Hams who have obstinate rigs, but I'm afraid they are unprintable! As I will be at the seaside all January, the next lot of notes will sure be QRP.

ZONE 8. ZO—VK2OJ.

Owing to altered QRA's and QRL this zone was not so well represented as I would have liked in the recent inter-zone relay contest. Intentions were good, but the happenings were unforeseen. 2YI was transferred to Girral, where he will supervise wheat weighing for a few months. The importance of his transfer, however, is that he will be second op. at 2FI. He is a force to reckon with. Athol thought Harry was going Hon hunting when he left here with a fresh coat of white paint (or shoe cleaner) on that jungle helmet, and a Monopole Midget. Hi?

2QD gone to Vim working at Eclipse Radio. We were sorry to hear of Hilton's trouble after reaching Vim, when his cousin, Bert Davies, was electrocuted during recent storms.

2QE now on radio service work and more QRL than previously.

3EG has new rig going, and just landed a brand new 203A. Hi? Intends adding this to present 3-stage transmitter. There are no other Hams in Tullangatta. Hi?

A new antenna going nicely at 2OJ has 3-wire top and likes DX.

Guess that's all for this year, gang, so wish all plenty of DX and good-luck in the new one.

VICTORIAN DIVISION. KEY SECTION NOTE.

By PETER H. ADAMS (VK3PX).

The Key Section meeting was held at the Institute Rooms on December 4, at 8 p.m. The chair was occupied by 3OK, and 30 members were present. The president complained about the poor attendance of Key Section members at the combined general meeting in November, and on a show of hands it was discovered that hardly any members had received notification that the meeting was to take place. This was due to the fact that the announcement had been made only at the previous general meeting, and at the phone section meeting. The secretary raised the point that it would be desirable to have, say, the president of the Key Section, an ex-officio member of council, so that the section could be kept in closer touch with the doings of council. However, after some discussion, to which 3UK, 3KN, and 3TH contributed, it was decided that matters could be quite satisfactorily arranged if there were close co-operation between the council representative (3KN) and the president and secretary of the Key Section. After QSL cards had been distributed by 3RJ, 3TH reminded members that the annual Federal Convention took place in Tasmania in January, and suggested that any matter to be discussed at the convention should be brought up as soon as possible. 3ML read the agenda as it stood at present, and 3MR mentioned that it would be desirable at the convention to get the new R.S.T. system of reporting signals officially recognised by the W.I.A. 3BQ suggested that anyone desirous of getting a rough check on the positions of the ten metre band should bring along to the next meeting an absorption wavemeter using a solidly made variable condenser, and a two-turn coil with a pea lamp in series. He promised to bring along a ten metre oscillator and calibrate these wave meters from it. Owing to the holidays, the next meeting will be held at the Institute Rooms on Thursday, January 10, at 8 p.m. At the conclusion of general business a debate was held, in which 3BQ, 3PK, 3ML, 3UK, 3JO, and 3RJ took part. The first three affirmed that it was desirable to restrict newly licensed amateurs for a probationary period. 3KN acted as adjudicator, and ably summed up the points made by the speakers, and the decision, by public vote, was almost unanimously against restriction.

3JJ has been trying multi-way contacts. The best so far is a five-way QSO with VP5PZ, VU2BL, SU6HL, and W8CRA, and finds 14 mc. better now than during last four years. 3OF, after listening throughout the year to com-

mercial harmonics on 28 mc., claims to have heard more signals during the last month than during the last six years. 3JO, also on 28 mc. 3OJ busy rebuilding and devising schemes for prevention of QRM from 3JO. VP5PZ's ambition is to have a WAC QSO party. 3WQ is rejoicing—he worked a ZL4. 3DP has scrapped the MOPA, and is building a 3-stage crystal rig. 3BJ spent his holidays in VK2, and met some R9YL's with 2OH. 3YQ is rebuilding all gear and intends to give 14 mc. fly. 3RS is still working on 14 mc. and 55 mc. with 3KQ. 3WY had his big stick blown down during the recent storm. 3OC is on again after a prolonged absence. 3YK appeared at a meeting again. His activities are confined to R.A.A.F. WR work. 3DT is still building new gear. 3DM's main interest is audio amplifiers, but hopes to be on the higher frequencies shortly. 3PK's YL has gone to Sydney, so he hopes to have more time for radio now. Anyone having interesting dope for this Section's notes, please "phone 3PK at Windsor 3612 at night, or during the day at Superheterodynes Pty. Ltd., St. Kilda.

VK3 PHONE SECTION NOTES. By J. R. KLING (3JB).

The last meeting was a combined meeting of the Phone Section and the Key Section, and there was a fair attendance. Mr. W. Gronow and Mr. G. Thompson acted as chairman alternately, conducting the business of the Sections, and various discussions and explanations took place as to the running of the Sections.

The following transmitting members of the Phone Section were present:—3SE, 3CB, 3DH, 3JB, 3CR, 3RO, 3RI, 3JR, 3FW, 3XJ, 3AM, 3OY, 3OV, 3ZO, 3PA, 3XL, 3MK, 3HF, 3TH, 3BY, 3GR, 3FY, 3LN, 3KE, 3LM, 3BT, and Messrs. Kerley, Manning, Lahiff, and Richardson of the Allocations Committee.

The Publicity Band Crystals were all put into the "pool," and after the allocations were read out were distributed to the various stations allocated positions on the band.

Mr. Thompson referred to the order of merit for the phone transmissions during the month, and mentioned the fact that the stations were all doing good work, as the percentages were all high, and very little difference between the top and bottom stations, as all the other stations were very close together.

PERSONAL PARS. FROM THE PHONE SECTION.

SLU has been off for a while owing to one of his "big" tubes going west, but we hope to see him on again soon.

3JB has been off once or twice as he had the bad luck to get an infection in the eye, but hopes to be O.K. again soon.

3AM has been doing well lately with good programmes.

3CB still does the afternoon session with plenty of pep.

3PA is pumping out fine stuff with Class "B" still.

3DH has been rebroadcasting 3FW, and it has been coming over O.K.

3FY has some early rising operators, as they have been heard on very early Sunday mornings.

3HK still has plenty of kick, and must be modulating deeply. 3ZO gets out up the bush O.K. according to country listeners.

SHORT WAVE NOTES.—VK3XJ.

The proposed syllabus which was to be published in this issue will be held over until the February issue owing to this group being compelled to change the night of meeting.

The first meeting in the New Year will be held on the second Wednesday as usual, 9th January, 1935, at which it is to be decided which night will be used for future meetings. All members of this Group are urged to make every effort possible to be in attendance on the 9th, and discuss this matter. GANG, ROLL UP!

From observations already taken on the signals from the German Short-wave Stations D.J.D. and DJN much useful data has been obtained, and, judging from the signal strength of these stations, it appears that they will be of 100 per cent. entertainment value as well as very useful for the collection of technical data on the behaviour of signals.

An interesting and educational address on "Induction on Telegraph Circuits, and methods used to remedy same" was delivered by Mr. H. Ferbrache at our meetings on December 12, 1934.

Mr. W. G. Sones is the lecturer on January 9, 1935, and his subject is "Frequency Measurements."

MALLEE AND NORTHERN NOTES. By 3WE.

During the last month QRN has been very bad up here, while the local QRM has made one feel like bombing our local D.C. town supply (for full description apply VK3TH). The latest source of annoyance is that caused by the dust storms—sounds like tearing calico, slowly and continuously. 20 metres seems positively dead here, although I understand 3KR worked VU and a few W's during the month. 40 metres, when QRN allows, seems somewhat better, but most erratic. At times you can hear nearly all countries, with a fair number of VK's, ZL, W, and K on phone; but a few minutes later the band just "blacks out." 80 metres, despite all its seasonal drawbacks, seems still the most active band, especially for local working. All VK and ZL, and occasionally W and K on phone, can still be heard when conditions permit. The "chain" gang still continue their Sunday activities, but signs have fallen off all round. 3WE has boosted the rig by adding a buffer (push pull), making 3 stages F.P. from local D.C.; but, owing to conditions, very little has yet been done. Most work during month has been done with 3GM, 3ZL, 3ZK, 3PY, 3WN, 3CE, 3EP, 3ZC, 3CR, 3IV, 3CH, and 3HU. 3WN is taking a portable away during the holidays, and wants the gang to keep a look-out for him. Some of the Wagga gang have been badly bitten by the 5 metre bug—heard 2YW on 30 metres working portable 2YW on 5 metres.

NORTH-EASTERN NOTES.

By VK3EG.

With the advent of summer, somewhat similar conditions to last year

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have manifested themselves; on 7 mc. strong local signals are causing terrific QRM for the early evening DX fiends, and what DX is on has not been very remarkable.

The early mornings are much more productive, and interesting contacts are possible. ZE1JO is heard quite regularly round 3 a.m., but this is the only South African heard and worked here. Considering he is only using 15 watts to a 245, and often reaches R5/7 QSB, it's a wonder we don't hear more from that direction. SU6HL has been worked round midnight, and GFYV, the motor yacht "Imperial" of Imperial Airways Ltd., Crete, Greece, asks that VK Hams watch for him. He is T9CC on 7060 kc. around 1430 G.H.T. Other countries workable in the early a.m. up to 3 a.m. at present, otherwise rarely heard, are ET, CR8, V8, VS7, FM4.

Conditions on 20 meters for my location are unencouraging. VK3, VK5, can be heard working VS7, W, CE, CX, VP5, G and D up till 2 a.m. here, and outside of a stray ZS nothing can be heard here except R Max signals from 3OW, 3MR, 5SU, 5XU, etc.

80 mx. is on the wane, and ole man static is in full force there most nights.

Regarding 10 mx. I have listened on this band when conditions of 20 mx. have produced extremely loud local sigs., but to date nothing has been heard except a couple of signals so weak as to be unreadable.

I hope to be on this band myself in the early part of New Year.

The new rig here since the old one was destroyed by lightning is a five-stager, using 47 co. 47 dbilr. 46 buffer, parallel 210's amp. and 203A final.

VK2OJ has been working on impedance matched antennae, should have some interesting dope to hand out soon.

Of the VIS sigs., 2VQ and 2OH are the best here, with terrific wallop day and night, while 5LD has at last completed tests and the DX is responding nicely.

A station that does some remarkable work is VK3PG, who has WAC with exception of Africa on 4 watts. How's that for you QRO fiends?

Cheerio and plenty of new toobs fer the New Year.

WESTERN DISTRICT NOTES. 3HG-30W.

In the past month the most noticeable thing has been the excellent conditions on 7 mc. for working W and other DX to the north. Signals from KA, OM, and VS6 are just like locals in the evenings, and reports received are very good. 14 mc. has been rather poor lately, but with some good patches when the Europeans and Africans come through. Very little DX from the east is heard here at all on this band, South Americans being well nigh absent, although other stations can be heard working them. On 3.5 mc. QRN holds sway, but occasionally it lessens, and lots of W and VE stations can be heard, but not raised from here, even though they call DX.

Of the gang's activities very little can be said. Most stations seem to concentrate on 14 mc. 3KK, 3GQ, 3BW, and 3HL heard on now and again. 3HM also welcomed back on 7 mc. 3PG still working DX with his low power, and chasing Africans for W.A.C. He has

been heard in Africa on at least three occasions, but as yet no 100 per cent QSO has been managed. 3NN has started up on Sunday morning schedules with 3KR again. 3OW rebuilding and rather inactive. 3HG working a little DX, mainly on 7 mc., which is the favorite band for DX here.

QUEENSLAND DIVISION NOTES.

At the December monthly meeting of the Queensland Division, held on Friday 7th, at headquarters, Heindorff House, Queen Street, a lecture dealing with "Modern Receiver Design" was delivered to a fair attendance of members by Mr. D. Laws, 4DR. Great interest was displayed on this subject by many members, and the talk was voted an excellent one.

The student classes terminated for 1934 on December 22, and for morse instruction will reopen early in January, while for technical classes instruction begins the first week in March. Intending students should note this fact, the idea being to provide sufficient time in which to form a complete class.

The Technical Development Section has been very active in connection with 56 mc. work, and in all there are now seven or eight receivers of various designs round Brisbane. Two-way working has taken place between 4HR and 4WI on about a dozen occasions quite reliably. During a recent test of 25 miles across the Bay, four transmitters could be heard on this frequency, although the results at the distant receiving point were nil. A directional aerial system "AR LA" QST was tried, and over a short distance a definite signal increase has been noted. Regular schedules are being planned on 56 mc. in the future.

Activity on 10 metres has suddenly sprung up. Among the active transmitters on this band are 4BB, 4XN, 4GK, 4US, and 4WT. 4BB, we understand, is doing exceptionally well, and up to the time of writing has had 66 contacts since early November, and his points for R.S.G.B. Contest total 276 to date.

4EN and 4WH, of Longreach, heard on recently probably getting ready for the 6 point relay.

4EL, consistent as ever, lands the DX, and seems to be able to QSO anything that can be heard, and sometimes that which can't be heard here. 4LM back from Sydney, and on three months' holidays after dissecting frogs, etc., and is now giving electron coupled oscillators a flutter, using a pair of 59's in push pull TNT.

4GA, of Mt. Nebo, is shifting QRA to Quamby, just outside Cloncurry, and is now looking out for a motor generator set to take away with him for some QRO gear. 4UU and 4US were on during the early stages of the 6 point relay, both with RAC notes.

4WT has been trying out a big "TOOB," as final amp., but has been wondering how the RF escaped from the grid circuit. 4ES keeps a weekly schedule with 4AW, and finds it handy when skip affects RAAF watches. 4JM has been busy of late, and not heard on his usual Sunday night fence yarns to 4AW and 4RY. QRN has been rather bad in VK4 of late, even on 40 metres, and we feel sure, if for that reason alone, the gang will welcome the winter months.

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SOUTH AUSTRALIA (VK5).

By ERIC HALLIDAY.

Summer conditions now exist in VK5, with the result that there is plenty of QRN on the higher wave bands.

On December 9 a picnic was held at Parafield aerodrome. Due to bad weather in the morning, the picnic proved to be almost a wash-out, only a very few members being present. Those who did go up had an FB time. 5GO, who happens to be man behind W.A. Airways at Parafield, lined out a couple of tennis courts inside the hangar, so most of the time was spent on the courts. Special thanks are due to 5GO for doing his part in trying to make a go of the picnic.

The Christmas general meeting was held on December 12. It consisted of a sit down supper, to which the 50 odd members present did full justice. The agenda for the Convention was discussed between mouthfuls of supper. Altogether, the evening proved to be a great success—such a success, in fact, that rumor has it that one party of diners did not get home until the wee, small hours of the morning.

The Technical Development Section has planned a busy year for 1935. 5WI will soon commence standard frequency transmissions on 7000 kc. and 7800 kc. The crystals to be used in these transmissions are being ground by 3BQ. It is also planned to put 5WI on 80 metre fone. This should assist the country members.

The T.D.S. will continue to give frequency checks on 40 m. on alternate Tuesday nights, between 1900 and 2000 (A.S.T.). The next night for checks is January 22. The checks are made on the institute's wavemeter, which has been calibrated from the P.M.G. Research Department's multivibrator.

5FM has been busy building up a high power rig. Has a couple of big tubes lying round the shack he wants to use. 5MW is still making a good job of his 200 m. transmissions. Ken. hopes to stage a comeback on 40 m. shortly. 5NR is another of the 200 m. "record grinders" who has found out that there is still plenty of fun on 40 m.

A new call on the air is 5XA. It belongs to Howard Stacey, 55 Gwynne Street, Fiole. Howard is using a p.p. T.N.T., with 245's, and a half-wave zepp on 40 m. Congratulations, o.m., on getting your call. 5JB, Jack Burgin, of Semaphore, has been heard on with 80 m fone. 5MY forsook his transmitter for a while recently, and went to Victor Harbor for his annual holidays. Harry has presented his QSL cards for his W.A.C. certificate.

5MD on 200 m. and 5BR on 80 m. have a long Q.S.O. every Sunday night, or, rather, Monday mornings. 5MD is the "super man" among VK5 hams. Can stay up all night on the transmitter, and then say he is not tired.

5LG has written, saying that he will be home from VK3 shortly. 5KL changed his Q.R.A., and was off the air for a few weeks until he could reassemble his gear. 5RF has been heard on the air again more often now that the exam. for the second class is over. 5CR has been trying 80 m. fone, but, as yet, the quality is a bit rough.

VK5 NOTES—By 6CP.

The activities of amateurs at present seem to be mostly on 10 mx. 6SA will deal with this band, so I will not make further reference.

The usual Eastern State signals are coming in on 40 metres, with static most nights very heavy, so bad in fact that a QSO is easily lost. I would like to inform the gang in VK5 that in future these notes must contain dope suitable for all our readers to enjoy, and that in future frivolities will not find space. A definite request to this effect has come from magazine head-quarters.

At present, conditions on 40 metres are patchy for local work, owing to skip, but on a recent evening the skip lifted, and VK 6GS was worked. 6GS has been on the air for six months, and this was his first VK5 QSO.

A peculiar feature of the evening was that Eastern Staters were only moderate. The date was November 26th, so others can compare their logs. So great was the local strength of signals that 6SA, who is normally R6, rose to blocking point of my receiver, while my sigs. rose from R5 to R9, the distance between stations being about six miles. Overseas stations heard and worked, with difficulty in the evenings, are K6LBZ, KAIAN, VU2FY, and occasional W and J and KAS very weak.

The active gang at present are MN, SA, RA, GS, RW, KB, CX, CY, and CP.

FIELD DAY.

VK6 (10 meter).

On Sunday, December 18, one of the most successful field days took place that has ever occurred in VK6.

Nine car-loads of Hams and YL's, as well as YF's, set out to look for a hidden 10 mx. xmitter in the vicinity of National Park. The outing was the work of the newly formed social committee. Having deposited 6CP at the starting point, 6SA set about hiding his portable rig in readiness to send out signals, both Morse and phone. A well thought out plan and a circuitous route brought the transmitter almost abreast of the starting point, with a fairly high hill in between, the distance being about half a mile straight line.

At ten-thirty the first car arrived, and, having been checked in by the starter, got busy with their receiver. The rest of the gang soon arrived, and then the fun began. No signals could be heard at the starting point, so the hill must have been doing its work. Some of the gang had definite bearings 3 miles from the transmitter, and gradually working back plotted a definite chart only to get tied up when they thought they were on top of the plant.

At last the canny Scot, 6MN, decided to spend a bob and enter the park to take a bearing on the other side of the hill, but as time was drawing near to a close he was unable to complete his chart. With a few more minutes to spare he and BN must have roped in the game.

Points were given for the best and most reliable bearings indicated on the charts and 6MN won a handsome cup with 13 points followed by BN and LJ with 10 points each.

The whole gang then adjourned to

the swimming pool, where the ladies soon prepared a sumptuous feast, after which SA got busy and after examining receivers and charts, declared MN the winner of the contest.

In presenting the trophy, Mr. Hamin, "Lecturer in Radio Physics at the University" eulogised the fine direction finding efforts of the amateurs.

To use his own words, he said, "Gentlemen you indeed have achieved something worth while, direction finding on 10 mx. with such unconventional gear too!" The trophy was handed over to MN to the accompaniment of clicks of numerous cameras. The receivers used consisted mostly of shielded Schnell circuits with single wire aerials about 10 ft. long. A couple of super regenerative rigs were also in evidence. Those attending and the points won are given hereunder.

MN and JS with YF and YL ..	13
BN and BB ..	10
LJ and his YL assistant ..	10
MY and JW and ladies ..	7
FK and AC ..	7
CX, KR, KB, with YFs and YLs ..	7
RL and J. Gollard ..	6
CB and mised party arrived just in time to be in at the kill.	

VK7 NOTES—BY TPA.

(Hon. Sec., Mr. H. M. Moorhouse,

95 Arthur St., N. Hobart.)

A very small gathering represented the monthly meeting for November.

Activities on the 40 metre band are fairly regular, and a fair amount of early morning DX is worked.

7JB does quite a bit in this early a.m. work, and has his usual fb. note.

7KV has his 800 perking up pretty well now, and is getting quite a good note at last, with good, clean signal. He tells me that 800's are — to neutralise—that right, KV?

7BZ does his share of DX each morning, when conditions are favorable. Says it keeps him occupied. He has a good note, but some fb. clicks.

7JH is always active, but his outfit, somehow, doesn't seem to get out as it should. He has been doing some aerial shifting for directive work.

7AR is re-building his outfit, and should be able to get the "goods", this time with "Tatts" behind him. What say Carl?

TPA has done a bit of DX work lately with the rest, and has had good reports.

7NC, our UHF. member, had his first contact with ZL on 10 metres late last month, and worked in a multi-qso—seven-way, I believe, from memory. This is the first ZL contact for VK7 on 10 metres.

The 200-metre gang carries on each Sunday, as usual, and there is very little to be said on this section. All manage to find enough canned music to keep up a programme, which, in most cases, gets pretty favorable comment.

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R.A.A.F. Wireless Reserve Notes

4th DISTRICT NOTE.

The Sunday morning watch on 7317 k/cs at 0900 hours is well observed by members in VMD. At present VMD1 activity is greater than that of VMD2. The chief reason for VMD2 inactivity being adverse conditions between members' stations. 4B1 and 4B3 find it difficult to contact one another on 7317 k/cs. 4B2 is not at home during weekends, so cannot keep watch. 4A4 sets good example to members of his section in the use of procedure, and puts out a good signal. He is applying for three months' leave, owing to other activities and business at present. 4A6 put out a good signal, and keeps regular watches. 4B1 has been advised of his transfer to north west of Cloncurry. 4Z2 assists D/C in contacting member stations. A general listening time has been set aside for any urgent traffic at 1900 hours on 7317 kcs. VMD activities will cease from 17/12 till 6/1, and watches recommence on 18/1.

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5th DISTRICT NOTES.

5th district watches will recommence on Sunday, January 6th, at 0900 on 7317 KC's. Members not having a calibration for this frequency can obtain one from 5Z1 at any time by arranging a schedule.

Applications for membership have been received from 5PB and 5XR. This is very pleasing as it will greatly strengthen the reserve in the south eastern district, and may serve as a connecting link with members in the western districts of Victoria.

Now, one thought re operating: The procedure manuals contain sufficient information to enable you to become an A1 operator. Read them thoroughly, even if it means making another new year resolution.

SPECIAL NOTE TO RESERVISTS

Notes of activities reaching this headquarters later than the 18th of the month will NOT be published in future.

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